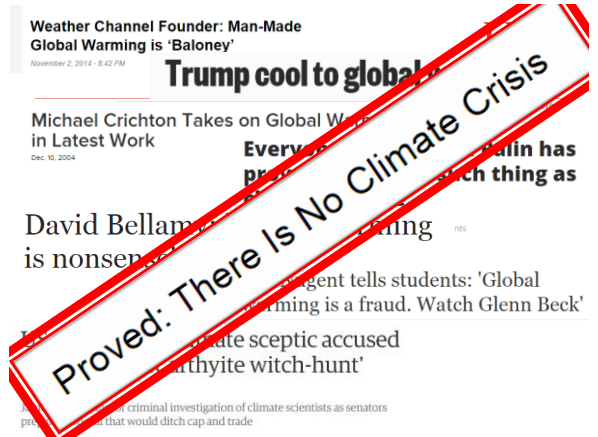


What happens if the climate sceptics/deniers are right?

Professor Simon Kingham
Dept of Geography & GeoHealth Laboratory
University of Canterbury

1



Transport policies

- Smart technology solutions
 - Non carbon-based fuels
e.g. Electric vehicles
 - Improve traffic efficiency
e.g. Driverless vehicles
- Change behaviour
 - Reduce motor vehicle use
e.g. encourage PT/transit & active transport

Climate change policies

- What are the *other* impacts of those policies?

Cleaner air

Traffic pollution in NZ per year:

- Kills 259 adults
- Causes 327,800 restricted activity days
- PM₁₀ costs \$942m

Source: Kuschel et al, Updated Health and Air Pollution in New Zealand Study Volume 1: Summary Report, 2012, Prepared for HRC, MoT, MfE and NZTA.

Less obesity



30% of the world is obese, cost is skyrocketing - report

9:40 AM Friday Nov 21, 2014

- Global obesity costs \$2 trillion p.a.
- 2.1 billion people (30% of the global population) are overweight
- 15 % of health care costs in developed economies
- *Obesity isn't just a health issue... it's a major economic and business challenge*

McKinsey Global Institute, 2014

Less obesity



The New Zealand Herald

National World Business Sport Technology Entertainment Life & Style

Obesity epidemic reaching crisis levels

By Patricia Deegan

7:05 PM Thursday May 25, 2014

Health Health & Wellbeing Obesity

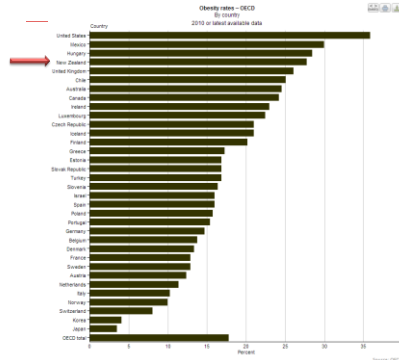


"New Zealand is in the grip of a global obesity epidemic, the future costs of which will be enormous, potentially unaffordable for the health system."

- Professor Norman Sharpe, New Zealand Heart Foundation medical director, Sept 2011

www.nzherald.co.nz/nz/news/article.cfm?id=1&objectid=10752121

Less obesity



Less obesity



Obesity costs NZ \$622m per year* in health costs alone (+ \$98-\$222m lost productivity)#

If NZ's obesity rates dropped from 33% to:

- 11.4% (NL); we'd save over \$600m p.a.
- 20% - we'd save over \$400m p.a.
- 25% - we'd save over \$300m p.a.

* Based on 2006 figures

Lal et al, 2012, Health care and lost productivity costs of overweight and obesity in New Zealand. Aust NZ J Public Health. 2012; 36:550-6

Less obesity

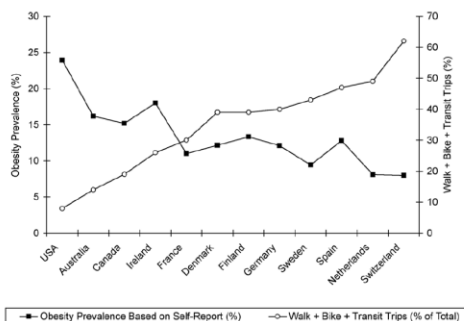


Declining Walkability Plays a Big Role in China's Obesity Problem

- Over 20% of all overweight or obese people in the world are Chinese
- Walkable urban design tied to walking for commuting, non-commuting and exercise

Source: Alfonzo et al, Walking, obesity and urban design in Chinese neighborhoods. Preventive Medicine, 2014

Less obesity



Source: Bassett et al, 2008, Walking, Cycling, and Obesity Rates in Europe, North America, and Australia. Journal of Physical Activity & Health 5 (6):795-814.

Less obesity



Walking to Public Transit Steps to Help Meet Physical Activity Recommendations

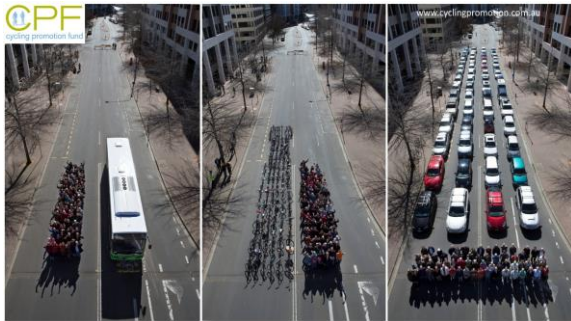
Lilah M. Besser, MSPH, Andrew L. Dannenberg, MD, MPH Am J Prev Med 2005;29(4)

The Effect of Light Rail Transit on Body Mass Index and Physical Activity

John M. MacDonald, PhD, Robert J. Stokes, PhD, Deborah A. Cohen, MD, MPH,
Aaron Kofner, MS, Greg K. Ridgeway, PhD

Am J Prev Med 2010;39(2):105-112

Less congestion



Less congestion



<http://www.kcet.org/social/departures/landofsunshine/la-river/from-freeways-to-waterways-what-los-angeles-can-learn-from-seoul.html>

Less congestion

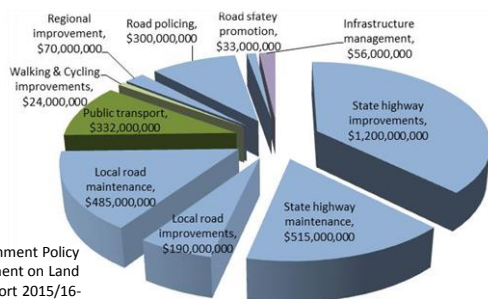


www.lafoundation.org

Less congestion



More efficient spending



Government Policy Statement on Land Transport 2015/16-2024/25

More efficient spending

- Review of 16 economic evaluations of health effects of transport interventions found benefit-cost ratio of 5:1 (Cavill et al, 2008)
- NZ research: "transforming urban roads over the next 40 years, using best practice physical separation on main roads and bicycle-friendly speed reduction on local streets, would yield benefits 10-25 times greater than costs" (Macmillan et al, 2014)

More efficient spending

- Every US\$1bn spent on:
 - highway infrastructure produced 8,781 job months
 - on Public Transport produced 16,419 job months

Source: *What we learned from the stimulus* report (report based on US Congress House of Representatives Transportation and Infrastructure committee) Jan 2010

Better business



NYC Dept of Transportation, Measuring the Street: New Metrics for 21st Century Streets www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf

Better business

Average Customer Expenditures by Mode of Travel and Type of Establishment

Mode	Establishment	Trips per Month	\$ per Trip	\$ per Month	N
Auto	Bar	1.6	25.55	40.21	88
	Convenience	9.9	7.98	79.37	543
	Restaurant	2.2	18.74	41.16	409
	Total	4.5	13.70	61.03	1,040
Bike	Bar	4.9	14.08	68.56	42
	Convenience	14.5	7.30	105.66	63
	Restaurant	3.5	12.08	42.52	48
	Total	7.1	10.66	75.64	153
Transit	Bar	1.8	19.54	35.35	13
	Convenience	10.9	6.91	75.62	53
	Restaurant	3.5	11.52	40.68	36
	Total	5.7	10.15	58.16	102
Walk	Bar	3.1	22.17	68.42	53
	Convenience	12.6	6.13	77.34	254
	Restaurant	2.6	16.74	43.77	131
	Total	5.9	11.25	66.22	438
Total	Bar	2.5	21.78	53.59	196
	Convenience	10.9	7.36	80.40	913
	Restaurant	2.4	17.39	41.78	624
	Total	5.0	12.60	63.46	1,733

Note: N = number of respondents.

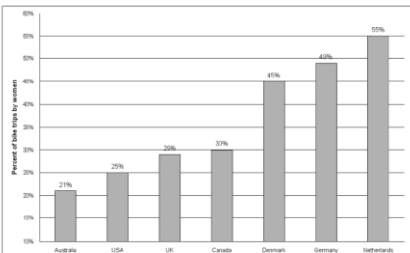
Clifton K, 2012, Business Cycles: Catering to the Bicycling Market, TRB 280, 26

Happier people



Morris EA and Guerra E, 2014, Mood and mode: does how we travel affect how we feel? Transportation DOI 10.1007/s11116-014-9521-x

Improved gender equality



Source: German Federal Ministry of Transport (2003), U.S. Department of Transportation (2003), Danish Ministry of Transport (2005), Statistics Netherlands (2005), Australian Bureau of Statistics (2007), Department for Transport (2007) and information provided directly by bike planners in Canadian provinces and cities

Figure 8 Women's share of total bike trips in Australia, the USA, the UK, Canada, Denmark, Germany and the Netherlands (2000-2005).

Source: Pucher and Buehler, 2008. Making Cycling Irresistible: Lessons from the Netherlands, Denmark and Germany, *Transport Reviews* 28 (4).

Improved social capital

Communities that promote sustainable and active can:

- Reduce disparities between the rich and poor
- Promote good neighbourhood
- Enable poor to gain better access to healthy food
- Lead to decreased crime

Source: OECD, 2000, Environmentally sustainable transport. Futures, strategies and best practices.

People heard

share an idea

[Home](#)
[Market](#)
[Space](#)
[Life](#)

What is share an idea?

Share & like

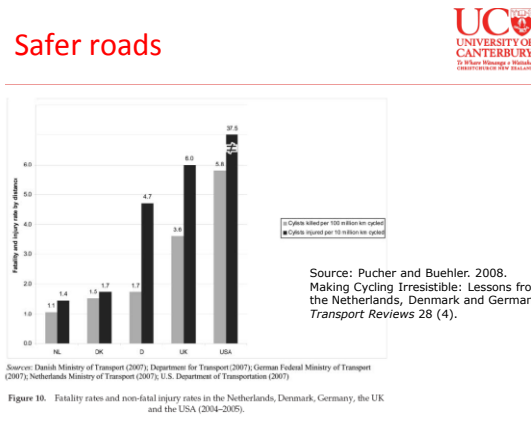
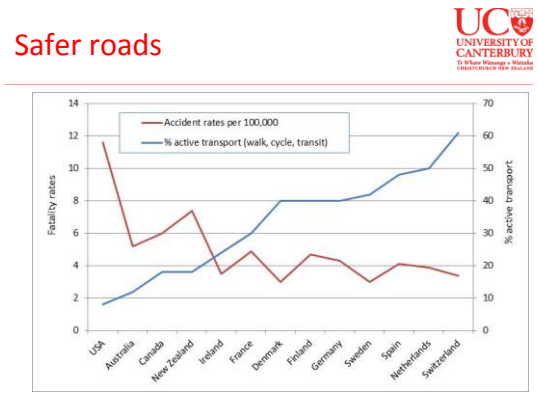
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Here's a summary of all the ideas we've received and analysed relating to market. Keep checking back as we continue to analyse all the ideas.

Want to view the original ideas? Click [here](#) to see what people said

Pedestrian focused Central City; make walking an enjoyable experience with integrated green walkway networks with wider footpaths, good lighting, street crossings, footbridges and covered walkways. Integrated and separated off-road, cycle lane network with safety a major focus. Cycle network connecting the Central City to the suburbs. Good facilities for cyclists with safe/potential cycle parking cycle hire for locals. Car free Central City or restricted access and slow speed zones; must consider accessibility for people with mobility issues. Train (or light rail) extended as part of the public transport network to suburbs; not just a tourist train; must be affordable. Central City free of big buses; smaller shuttles that are less polluting, quieter and take up less space. Integrated, affordable public transport network with central hubs for buses and trains/light rail (e.g. Mosehouse Ave railway station). Rethink location of bus exchange. One-way versus two-way road network. Free or affordable park-and-ride system on periphery of Central City. No parking buildings in the heart of the Central City. Different parking options depending on day/night, weekday/weekends.



More cyclists

Assessment of the type of cycle infrastructure required to attract new cyclists

- Type of infrastructure needed to attract 'new' cyclists
- Investigate the barriers and motivations for cycling
 - Perceived danger is main barrier!
 - Physical separation was key

Source: Kingham S, Koorey G and Taylor K, 2011, Assessment of the type of cycle infrastructure required to attract new cyclists. NZTA Research Report 449.

More cyclists

Strong & fearless

Interested but concerned ~ 50 - 60%

Not able or not interested ~33%

Enthusiased & confident

Roger Geller's 4 types of cyclist
<http://www.portlandoregon.gov/transportation/44597?a=237507>



Summary of co-benefits of climate change policies

- Cleaner air
- Less obesity
- Less congestion
- More efficient spending
- Better business
- Happier people
- Improved gender equality
- Improved social capital
- People heard!
- Safer roads
- More new cyclists

Risk!



capital
air)

... we could end up like this.....

Risk!

